



Charlie Crist
Governor
Cynthia R. Lorenzo
Interim Director

SELECTED GREEN JOBS SURVEYS CONDUCTED BY STATE WORKFORCE AGENCIES IN WASHINGTON, MICHIGAN, OREGON, MINNESOTA, AND CALIFORNIA

**Florida Agency for Workforce Innovation
Labor Market Statistics Center**

May 2009

WASHINGTON EMPLOYMENT SECURITY DEPARTMENT

Definitions	<p>The green economy is rooted in the development and use of products and services that promote environmental protection, energy independence, and economic development.</p> <p>Green jobs are jobs in the primary industries of a green economy that promote environmental protection and energy independence.</p> <p>Energy independence includes the development and use of energy efficiency and renewable energy products and services.</p> <p>Environmental protection includes the prevention and reduction of environmental pollution, as well as efforts to mitigate environmental pollution.</p>																						
Scope	Identify green economic sectors and “direct” green jobs and measure growth over time in the private sector.																						
Geography	Statewide and data were disaggregated for each of the state’s 12 Workforce Development Areas.																						
Number of green jobs	<p>The survey identified 47,194 green jobs, 1.6 percent of total private state employment.</p> <p>Washington defined four “green core areas,” in which it asked employers to classify themselves:</p> <ul style="list-style-type: none"> • Energy efficiency accounts for over half of all green jobs. Construction-related industries and occupations account for 70 percent of employment in the energy efficiency area, followed by professional and technical services such as architecture and engineering. • Preventing or reducing pollution was the second largest green core area, accounting for one-third of all green jobs. Agriculture-related industries and occupations represent over half of all employment in this green area, followed by construction, and waste management and remediation services. • Mitigation and cleanup of pollution was the third largest green core area, accounting for 9.5 percent of all green jobs. Professional and technical services, and waste management and remediation services, represent over two-thirds of employment in this green area. • Renewable energy provided just over four percent of all green jobs. Construction-related industries and occupations, and professional and technical services, account for nearly half of all employment in this core area, followed by agriculture-related sectors, and electrical equipment manufacturing. 																						
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WASHINGTON EMPLOYMENT SECURITY DEPARTMENT

Training needs identified	<p>Over 47 percent of participating employers reported that they hold industry certifications in one or more green core areas. Construction accounted for 54 percent of all reported certifications.</p> <p>The study recommends a subsequent survey to expand analyses of green economy industries and occupations to address anticipated labor shortages in many green jobs due to retirements, population trends, low enrollments in related education and training programs, and a lack of career interest among K-12 students in the industries and occupations that support green economy growth.</p>
Survey method	<p>The survey was sent by mail with aggressive phone follow-up. The sample size was 17,221 establishments with a minimum of 200 employees out of a population of 27,284 establishments. The response rate was 61.1 percent.</p>

WASHINGTON STATE GREEN JOBS SURVEY



ABOUT THE SURVEY

Washington has long been a national and international leader on energy conservation and environmental stewardship, including air quality protection, renewable energy development and generation, emission standards for fossil-fuel based energy generation, energy efficiency programs, natural resource conservation, vehicle emission standards, and the use of biofuels.

Washington State has established goals to grow the clean energy business sector and reduce the state's expenditures on imported fuels. As part of that, the Employment Security Department was mandated to conduct this survey to determine the number of "green jobs" in the economy **currently** and **within the past three months**.

We are surveying firms that produce any goods or provide services in any of the following 4 core areas:

1. Increasing energy efficiency
2. Producing renewable energy
3. Preventing and reducing environmental pollution
4. Providing mitigation or clean-up of environmental pollution

If you or any of your staff have worked in any of these core areas as their primary job function, either full or part time, continue to page two. If not, please fill out information below and return.

- Please direct this survey to your Operations Manager or Human Resources Department.
- Include information about all your locations in Washington State.

OPTIONS FOR RESPONDING TO THE SURVEY

- Return the survey in the enclosed postage-paid envelope, or
- Fax both sides to (360) 438-3215, or
- Contact us at (800) 837-3074 to report by telephone or receive answers to your questions.
- In order to use your information, please respond before September 26, 2008.
- Your prompt response is appreciated.

PLEASE REPORT FOR THE LOCATION(S) LISTED ON THE ADDRESS LABEL

How many employees do you currently have in Washington State? _____

Number of employees who are full time: _____

Number of employees who are part time: _____

Provide goods or services in any of the four core areas: Yes ___ No ___

CONTACT PERSON

Name: _____

Title: _____

Telephone: () _____

Date: _____

THANK YOU FOR PARTICIPATING!

**Washington State
Employment Security Department**

Labor Market and Economic Analysis



Employment Security is an equal-opportunity employer and provider of programs and services. Auxiliary aids and services are available upon request to people with disabilities.

MICHIGAN DEPARTMENT OF LABOR, ENERGY AND ECONOMIC GROWTH

Definitions	<p>Green jobs are jobs directly involved in generating or supporting a firm’s green related products or services.</p> <p>The green economy is comprised of industries that provide products or services in:</p> <ul style="list-style-type: none"> • Clean transportation and fuels • Increased energy efficiency • Pollution prevention or environmental cleanup • Agriculture and natural resource conservation • Renewable energy production. <p>Green-related Industry: A detailed industry sector that is likely to contain firms that produce parts, components, products or services related to the green economy. Industries and firms were classified as green-related based on their primary product or service; not based on whether they were taking internal steps to use less energy or be more environmentally responsible.</p>																						
Scope	To estimate the number of green jobs (both direct and support) in the Michigan economy using an employer survey and to evaluate the expectations of employers regarding current and future green-related workforce needs using the survey, analysis, and focus groups.																						
Geography	Statewide																						
Number of green jobs	<p>The study identified 96,767 direct green jobs and 12,300 support green jobs, or a total of 109,067 green jobs, currently representing 3.4 percent of total private sector employment.</p> <p>Using Washington State’s model, Michigan defined five “green core areas” and asked employers to classify themselves:</p> <ul style="list-style-type: none"> • The Clean Transportation and Fuels core area accounts for 39,300 or 41 percent number of the state’s green jobs. • Nearly one-quarter of green jobs in the state were attributable to the Energy Efficiency core area, and most of these positions were associated with the state’s construction industry. • Pollution Prevention & Environmental Cleanup and Agriculture and Natural Resource Conservation supplied about 12,000 green jobs each. • Renewable Energy chipped in nearly 9,000 green jobs. 																						
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MICHIGAN DEPARTMENT OF LABOR, ENERGY AND ECONOMIC GROWTH

<p>Training needs identified</p>	<p>Nearly 70 percent of employers in the survey said training their green-related workers would be workplace-based as they looked to upgrade or enhance current workers' knowledge. This finding reinforces the importance of career ladders for current and incoming workers.</p> <p>Despite the need for some specialized green skills, employers in the focus groups stressed that workers still need the basics. Green skills are an overlay of new skills and knowledge; and learners cannot access the new knowledge without the requisite foundation.</p> <p>Skills in science, technology, engineering and math will be important, and positions with these skills may be most difficult to fill. The focus group identified a list of critical knowledge and skill sets that are hard to find in potential employees.</p> <p>The top five green occupations with potential recruiting difficulties identified by employers are:</p> <ul style="list-style-type: none"> • Farmworkers and laborers, crop, nursery and greenhouse • Sales representatives, services, all other • First line supervisors/ managers of production and operating workers • Electrical engineers • Engineering managers <p>The top five occupations that require unique skills for "green projects" are:</p> <ul style="list-style-type: none"> • Environmental scientists • Civil engineers • Landscaping and groundskeeping workers • Plumbers, pipefitters and steamfitters • Construction managers
<p>Survey method</p>	<p>Three-pronged approach: survey mailed to employers, analytical work using LMI, and focus groups to understand workforce issues. The sample size was 13,303 out of a population of 121,279 establishments. The response rate was 49 percent.</p>



STATE OF MICHIGAN
DEPARTMENT OF ENERGY, LABOR & ECONOMIC GROWTH

JENNIFER M. GRANHOLM
GOVERNOR

STANLEY "SKIP" PRUSS
DIRECTOR

February 12, 2009

Michigan Green Jobs Survey
An Invitation to Help Define the "Green" Economy

Dear Employer:

The new "green" economy is Michigan's greatest opportunity to attract new investment, create new jobs, and diversify our economy. This green industrial revolution offers Michigan companies unlimited opportunity for growth to meet the exploding demand for products, parts, and services in this emerging sector.

We need to position ourselves to take advantage of the job-creating potential the green economy offers. The Department of Energy, Labor, & Economic Growth is conducting a survey to assess the number of green jobs in the Michigan economy. This survey will measure for the first time, the current number of jobs in this rapidly evolving sector, identify core growth areas, and provide information that will be crucial to help train Michigan's workforce for the jobs in demand.

We are very interested in knowing more about your company's green jobs, those that produce products or services for the green economy.

What is the green economy? Your company contributes to the green economy if you have **employees** working to provide products, parts, goods, or services in any of the following core areas:

1. Producing renewable energy
2. Increasing energy efficiency
3. Clean transportation and fuels
4. Agriculture and natural resources conservation
5. Pollution prevention and environmental cleanup

This includes businesses in manufacturing (primary or component parts); construction (residential, commercial, energy retrofitting, etc); research and development; waste management; environmental cleanup; organic farming; design and engineering services, and many more. We realize this definition is broad. A document is enclosed which provides a more complete definition and examples of these core green-related activities.

Please complete the enclosed survey to report the jobs in your company related to these sectors, and return it in the self-addressed, postage paid envelope by February 27, 2009. All information provided by individual firms will be kept absolutely confidential.

Thank you for your valuable time and participation in this survey.

Sincerely,

Stanley "Skip" Pruss
Director

STATE OF MICHIGAN GREEN JOBS SURVEY



ABOUT THE SURVEY

The State of Michigan strives to diversify its economy through business development in new sectors such as renewable energy and energy efficiency. This effort includes supporting development of business sectors and jobs in areas such as wind energy, biofuels, solar energy, energy efficiency, and other "green-related" sectors.

The Michigan Department of Energy, Labor & Economic Growth has been directed to conduct this survey to determine the current number of jobs in these sectors, and also among businesses that **supply parts, components, products, or services** to support these sectors. The survey will identify jobs that produce goods or services related to any of the following five core green-related activities:

1. Producing renewable energy
2. Increasing energy efficiency
3. Clean transportation and fuels
4. Agriculture and natural resource conservation
5. Pollution prevention and environmental cleanup

Please see the enclosed handout that gives specific definitions of these sectors and examples of the green-related jobs they supply.

If your firm conducts "green-related" business activities **that produce goods or supply services** related to any of these five core areas, please complete the information below and continue to page two. If not, please fill out Section 1 and Section 2 below and return using the postage-paid envelope.

DIRECTIONS AND SURVEY RESPONSE OPTIONS

- Please direct this survey to your operations manager or human resources department.
- Include information about the Michigan business location listed in the lower left-hand corner of this form.
- All information will be treated confidentially.
- Return the survey in the enclosed postage-paid envelope, or
 - Fax both sides to (800) 794-6424, or
 - Contact us toll free at (888) 587-3282 to report by telephone or receive answers to your questions.
 - Questions can also be emailed to us at greenjobssurvey@michigan.gov
- To ensure inclusion of your information, please respond to this survey by February 27, 2009.

Section 1

Do you or any of your staff work to provide goods or services in any of the above five core green-related areas?

_____ Yes Please complete Sections 2-3 on this page and Sections 4-5 on the reverse side.

_____ No Please provide us with contact information below in Section 2, and mail survey in postage paid envelope, or fax survey back to (800) 794-6424.

Section 2

CONTACT PERSON

Name: _____

Title: _____

Telephone: () _____

Date: _____

Contact Name
Trade Name, Unit Description
Address
Address 2
City, State, Zip

Survey ID #:

Section 3

PLEASE REPORT FOR THE MICHIGAN BUSINESS LOCATION SHOWN IN THE LOWER LEFT-HAND CORNER OF THIS FORM

How many employees do you currently have at this location in Michigan? _____

How many of these are employees whose primary function is the production of "green-related" products and services? _____

How many of these are employees who hold support jobs for your "green-related" business activities? _____

How many of these are employees engaged in business functions *unrelated* to your "green" business activities? _____

THANK YOU FOR PARTICIPATING!

Michigan Department of Energy, Labor & Economic Growth

Bureau of Labor Market Information & Strategic Initiatives
3032 West Grand Boulevard, Suite 9-100
Detroit, MI 48202

OREGON EMPLOYMENT DEPARTMENT

Definitions	A green job is one that provides a service or produces a product in any of the following categories: <ul style="list-style-type: none"> • Increasing energy efficiency • Producing renewable energy • Preventing, reducing, or mitigating environmental degradation • Cleaning up and restoring the natural environment • Providing education, consulting, policy promotion, accreditation, trading and offsets, or similar services supporting the categories above.
Scope	The survey will answer the question: What are the jobs and skills required if Oregon is to expand its energy efficiency and renewable energy production efforts?
Geography	Statewide
Number of green jobs	Survey results will be published in June 2009.
Top five green industries	Survey results will be published in June 2009.
Top five green occupations	Survey results will be published in June 2009
Training needs identified	Survey results will be published in June 2009.
Survey method	Oregon did two mailings with phone follow up. They also offered a web-based response option. Oregon sampled 10,436 firms with 2 or more employees across 16 industries. The survey used Washington State's methodology. It surveyed all industries except federal government and private households. The target response rate is 45 percent.

What We Mean by Green

Did your organization have any jobs in 2008 where work in green categories was *essential* to the job?

If **so**, please look through the following examples to determine which jobs should be counted in our survey. These examples are not comprehensive and many jobs which are green are not included here.

If **not**, please stop and respond online, or fill out the information on page one and return this survey form in the pre-paid envelope.

We are attempting to count jobs where environmental protection or preservation is central to the employee's work, and where employees use specific job-related skills that result in environmental benefits. Although it is important, we are not including jobs at companies that have adopted environmentally-friendly practices such as recycling office paper, promoting car pools or using energy-efficient lights or solar panels – unless the firm had specific employees whose job was to further these practices. If you are an employer that has become more ecologically friendly in your business practices, we congratulate and thank you, but ask that you include only those jobs where work in green activities was *essential* to the function of the job.

1. Increasing energy efficiency

Examples include: LEED certified design and construction, energy efficiency engineering, residential window retrofitting, insulation installation, etc.

Examples do not include: workers at firms where the firm has become "greener" by replacing light bulbs, reducing office thermostat temperatures, purchasing fuel efficient fleet vehicles, carpooling, etc.

2. Producing renewable energy

Examples include: solar PV cell manufacturing, wind turbine maintenance, wave energy research, hydro-electric generator repair, biodiesel production, geothermal drilling, design of renewable energy plants, etc.

Examples do not include: electrical power distribution, producing high-voltage electric lines, etc.

3. Preventing, reducing, or mitigating environmental degradation

Examples include: carbon emissions monitoring, organic farming, biomass or biodiversity preservation, recycling center operation, mass transit administration, wastewater treatment, etc.

Examples do not include: workers who telecommute or carpool, cleaning services using "eco-friendly" chemicals, workplaces using recycled paper, etc.

4. Cleaning up and restoring the natural environment

Examples include: heavy equipment operation at superfund sites, hazardous waste cleanup, wetlands restoration, etc.

Examples do not include: volunteers, workers that "adopt-a-street", garbage disposal services, etc.

5. Providing education, consulting, policy promotion, accreditation, trading and offsets, or similar services supporting categories 1-4

Examples include: policy analysis, energy auditing, environmental sciences research, carbon credit brokering, certifying environmental practices, etc.

Examples do not include: educational administrative staff, secretarial services at law firms, etc.

If you need further assistance please contact our Green Survey Team at 1-888-550-7880.



Printed on 100% recycled paper

Oregon Green Jobs Survey



Oregon Employment Department
Workforce & Economic Research
875 Union Street NE
Salem, Oregon 97311
www.QualityInfo.org

ABOUT THE SURVEY

The Oregon Employment Department is measuring the number of green jobs which existed in Oregon in 2008. We define a green job as one that provides a service or produces a product in any of the following categories:

1. Increasing energy efficiency
2. Producing renewable energy
3. Preventing, reducing, or mitigating environmental degradation
4. Cleaning up and restoring the natural environment
5. Providing education, consulting, policy promotion, accreditation, trading and offsets, or similar services supporting categories 1-4

If working in one or more of these green categories was *essential* to any job in your organization in 2008, please complete the entire survey. If not, please fill out only the information below and return.

- Your responses will be kept strictly confidential
- Include information for all locations in Oregon
- Please respond to the survey **no later than February 27th, 2009**

OPTIONS FOR RESPONDING TO THE SURVEY

- Respond online at www.qualityinfo.org/greenjobs, or
- Return the survey in the enclosed postage-paid envelope

We will follow up with businesses that do not return their surveys to ensure the accuracy of our results. **If you have any questions, please contact the Green Survey Team toll-free at 1-888-550-7880.**

Don't know if your employees count? The back of this survey has detailed guidelines and examples!

CONTACT INFORMATION (please print)

Name: _____

Telephone: _____

Would you like a free copy of the report summarizing these survey results? Yes No

PLEASE REPORT FOR ALL OF YOUR FIRM'S LOCATIONS IN OREGON

1. Approximately how many jobs did you have in Oregon in 2008? _____

2. Was working in one or more green categories essential to any of those jobs in 2008?

Yes No

If Yes – for how many jobs? _____

If No – stop, and please return the survey

THANK YOU FOR PARTICIPATING!

MINNESOTA DEPARTMENT OF EMPLOYMENT AND ECONOMIC DEVELOPMENT

Definitions	<p>Minnesota businesses are “going green” by implementing environmentally-friendly operations or providing niche products and services that are beneficial to the environment. (Note: The definition was intentionally left wide open)</p> <p>Definitions by Minnesota Governor’s Green Task Force Green jobs are the employment and entrepreneurial opportunities that are part of the green economy, as defined in Minnesota statute 116.437J1, including the four industry sectors of green products, renewable energy, green services and environmental conservation. Minnesota’s green jobs policies, strategies and investments need to lead to high quality jobs with good wages and benefits, meeting current wage and labor laws.</p> <p>Green Economy is defined in Minnesota Statute Section 116J.437 as follows: “[G]reen economy” means products, processes, methods, technologies, or services intended to do one or more of the following: (1) increase the use of energy from renewable sources, including through achieving the renewable energy standard established in section 216B.1691; (2) achieve the statewide energy-savings goal established in section 216B.2401, including energy savings achieved by the conservation investment program under section 216B.241; (3) achieve the greenhouse gas emission reduction goals of section 216H.02, subdivision 1, including through reduction of greenhouse gas emissions, as defined in section 216H.01, subdivision 2, or mitigation of the greenhouse gas emissions through, but not limited to, carbon capture, storage, or sequestration; (4) monitor, protect, restore, and preserve the quality of surface waters, including actions to further the purposes of the Clean Water Legacy Act as provided in section 114D.10, subdivision 1; or (5) expand the use of biofuels, including by expanding the feasibility or reducing the cost of producing biofuels or the types of equipment, machinery, and vehicles that can use biofuels, including activities to achieve the biofuels 25 by 2025 initiative in sections 41A.10, subdivision 2, and 41A.11. For the purpose of clause (3), “green economy” includes strategies that reduce carbon emissions, such as utilizing existing buildings and other infrastructure, and utilizing mass transit or otherwise reducing commuting for employees.</p>
Scope	Identify green job titles and training requirements for future training. Identify green opportunities for emerging green industries and identify transferable skills to meet hiring needs of such green industries.
Geography	Statewide and twin cities.
Number of green jobs	Survey results not published yet.
Top five green industries	Survey results not published yet.
Top five green occupations	Survey results not published yet.
Training needs identified	Survey results not published yet.
Survey method	Minnesota did two mailings and follow up by phone. Minnesota surveyed 30 industries designated as green and added a random sample of all other industries. The total sample size was 1,500.

**Minnesota Department of Employment
and Economic Development**

1st National Bank Building
332 Minnesota Street, Suite E200
St. Paul, MN 55101-1351

THANK YOU FOR COMPLETING THIS SURVEY.

Please fold the completed survey so that the Business Reply Mail panel (below) is showing and mail it back to us. No postage is necessary!

October 8, 2008

More and more Minnesota businesses are “going green” by implementing environmentally-friendly operations or providing niche products and services that are beneficial to the environment. Both employers and workers are talking about green jobs or skills, but there is little information available about what employers really need from the workforce. This survey hopes to collect information about what Minnesota businesses are doing to “go green,” as well as what types of skills, knowledge or attitudes both current and future workers need.

We hope that you have a few minutes to complete this survey. The results will be used to assist job seekers, workforce professionals, educational institutions and others who want to make sure green businesses have the best-prepared workforce possible. If another person in your company is better able to answer these questions, please direct the survey to him or her. The survey has an identification number that is used for tracking purposes only. If you have any questions about this survey, please contact Rachel Hillman at (651) 642-0728 or email rachel.hillman@state.mn.us .

Thank you again for your participation.

Instructions:

- If possible, please provide information only for the location listed on the address label. If that is not possible, please answer for the employees in the State of Minnesota.
- The survey is printed on a postage-paid self-mailer. Please fold it so that the return address to the Minnesota Department of Employment and Economic Development (DEED) appears on the outside.
- Company information on this survey is for tracking purposes only. Individual company responses will not be identified in any report or survey results. Only aggregate results will be published.
- **Please respond by November 3, 2008.**
- A summary report with survey results will be posted online later this year. If you would like to receive an email notification when the report is available, please list contact information below:

Name: _____ (optional)

Email address: _____ (optional)

Check here if you would like someone from DEED to contact you about your “green” workforce needs

1. On average, how many workers are employed at this location? _____
2. What is your primary line of business? (*Please circle one*)
 - a. Manufacturing
 - b. Construction
 - c. Energy production or distribution
 - d. Wholesale or retail trade
 - e. Professional or business services (e.g. consulting, engineering, and architecture)
 - f. Other (*please specify*) _____
3. What are your primary products or services? _____
4. What percent of your total products or services can be considered “green” (environmentally-friendly or beneficial to the environment)? _____ percent (*please specify “zero” if none*)
5. Does your business have an environmental certification or do you create a product that has an environmental certification?

Yes No If yes, please specify products certified and type of certification below (or attach additional info):

NOTE: The MN Department of Commerce may be starting a marketing effort for Minnesota made green products. If you produce a green product in the state, please contact Linda.Limback@state.mn.us at the MN Department of Commerce.

6. Is your business currently adopting green practices in any of the following areas, or do you plan to be in the next two years? *(Please check all that apply. Some descriptions are listed below the table.)*

Activity	Currently Involved	Future Plans (Next Two Years)
Implement an Environmental Management System (EMS) ¹		
Participate in National Environmental Performance Track Programs		
Produce products with significant green performance attributes ²		
Practice product design for the environment ³		
Adopt pollution prevention best practices – reduce or eliminate pollution at the source		
Implement clean production processes ⁴		
Adopt eco-efficiency approaches ⁵		
Utilize renewable energy or purchase green power		
Select suppliers that provide environmentally superior materials, products, and practices		
Integrate green design approaches in facilities and sites		
Minimize waste and energy in product distribution and end-use		
Share responsibility for best product end-of-life practices		
Provide a service (e.g. construction, business, etc.) categorized as green		
Employ people with specific green production, process or business skills		
Implement environmental corporate social responsibility into company policies and decisions		
Support low-impact employee transportation; carpooling, mass transit, telecommuting		
Other <i>(please specify)</i>		

¹ **Environmental Management System** Through EMSs, an organization sets internal standards, prevents noncompliance, and improves environmental performance. Companies using EMSs tackle a broad range of issues beyond basic compliance such as energy and water use, transportation, packaging, and even the performance of suppliers.

² **Green Products or Services** A product or service that is applied to measure, correct, prevent, limit, improve, or eliminate water, air, land, and ecosystem impacts and improve environmental quality.

³ **Design for the Environment (DFE)** is based upon consideration of the entire lifecycle of a product “upfront” during design and optimizing design to improve product function and appeal while maximizing efficient use of water, materials and energy.

⁴ **Clean Production** takes advantage of opportunities to reduce and even eliminate the reliance on toxic materials in manufacturing, to prevent air and water pollution, and to avoid hazardous waste generation. May include a “closed-loop” system in which water, materials and energy byproducts of one factory become feed stocks for another.

⁵ **Eco-efficiency** is a management strategy that links financial and environmental performance to create more value with less ecological impact. Eco-efficiency gains can be achieved through such things as optimized processes, waste recycling, and eco-innovation (manufacturing “smarter” by using new knowledge to make old products more resource-efficient to produce and use).

7. What types of “green” skills or knowledge do your employees currently need or do you foresee your employees needing in the coming years? *(Please check all that apply)*

Skill or Knowledge	Current Need	Future Need
General knowledge of the value and principles of energy conservation		
Identification of operational waste, including waste minimization and managing hazardous wastes		
Pollution reduction and control techniques, including alternative energy sources		
How to use green materials in the manufacturing or construction process		
Management skills for implementing or sustaining conservation practices or processes, including facility assessment and energy auditing		
Sustainability assessments, including performance measurements		
Knowledge of globalization issues involving green manufacturing		
Knowledge of environmental policies or regulations (e.g. firm-specific or government)		
Knowledge of innovative clean technologies and processes		
Knowledge of green business methodologies (e.g. environmental cost accounting, carbon modeling)		
Other <i>(please specify)</i>		

13. Which of the following types of knowledge do you think are most important for your future hiring needs? *(Please circle all that apply)*

- a. Engineering and technology
- b. Mechanical (knowledge of machines and tools, including their designs, uses, repair, and maintenance)
- c. Administration and management
- d. Production and processing (knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods)
- e. "Lean" principles (e.g. inventory flow, waste reduction, etc.)
- f. Mathematics
- g. Chemistry, biology or other sciences
- h. Computers and electronics
- i. Clerical (including interacting with computers)
- j. Building and construction
- k. Customer service
- l. Design (knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models)
- m. Other *(please specify)* _____

14. Do any of the following barriers stand in the way of your implementation of green practices? *(Circle all that apply)*

- a. Shortage of workers currently having green knowledge or skills
- b. Shortage of workers with other (non-green-related) knowledge or skills *(please specify)* _____
- c. Shortage of programs to train workers in green production, processes or business
- d. Costs of implementation
- e. Government policies
- f. Not interested in implementing green practices or production at this time
- g. Other *(please specify)* _____

15. Other comments:

CALIFORNIA EMPLOYMENT DEVELOPMENT DEPARTMENT

Definitions	<p>Green employees produce goods or services in any of the following “GREEN” categories:</p> <ul style="list-style-type: none"> • Generating and storing renewable energy - Includes alternative energy generated by but not limited to wind, solar, water, biofuels, biomass, hydrogen fuel cells, and geothermal. • Recycling existing materials - Businesses involved in the collection and processing of recyclable materials, including firms running a recycling or wastewater plant. Includes environmental clean-up and remediation. • Energy efficient product manufacturing, distribution, construction, installation, and maintenance - Includes companies involved in the research, development, and manufacturing of products such as solar panels, energy efficient light bulbs, and alternative fuel vehicles. Also includes companies that install and repair these products in new or existing residential or commercial real estate, as well as real estate planning and land development. • Education, compliance, and awareness - Includes training providers for curricula such as solar panel installation, energy auditing and residential consultation, sustainability management, alternative fuel and vehicle systems, etc. Also includes environmental consulting, governmental/legislative compliance, conservation and wildlife programs, trading and offsets, and social assistance. • Natural and sustainable product manufacturing - Includes companies that create products using natural materials. Also includes businesses that produce safe, nontoxic products; bamboo products; products out of previously recycled materials; and agricultural firms that practice sustainable farming or forestry.
Scope	To estimate current green jobs and to identify the occupations that are emerging or evolving in our movement toward a more green economy.
Geography	Statewide and all MSAs
Number of green jobs	Survey results not published yet.
Top five green industries	Survey results not published yet.
Top five green occupations	Survey results not published yet.
Training needs identified	Survey results not published yet.
Survey method	The sample size is 51,000 out of 1 million employers. California did a pretest, will mail the survey (signed by the governor) and will follow up with phone calls and there is a web-based response option as well. The survey includes a checklist of 30 green occupations for employers to select or add other occupations if necessary.



GOVERNOR ARNOLD SCHWARZENEGGER

Dear California Employer,

California employers lead the globe as entrepreneurs, innovators and investors. You have the insights to take advantage of emerging technologies and industries as our state evolves and makes more efficient and sustainable use of our limited natural resources. Our developing green economy offers opportunities for new investments, products, services, markets and jobs.

It is vital that our state works to align your business activities with our public policy investments. The attached survey asks questions related to green activities and how they are influencing your workforce.

By taking a few minutes to complete this survey, you will provide California's public workforce system with information necessary to tailor current worker training programs to better support our green economy. Your response will also provide important feedback as we implement President Obama's American Recovery and Reinvestment Act of 2009.

There are many convenient ways to complete this survey. I encourage you to save time and energy by responding online at www.labormarketinfo.edd.ca.gov and clicking on "Green Survey." You can also return your completed survey in the enclosed envelope or fax it to (916) 262-2607 or (916) 262-2351. Please respond within fifteen days.

Thank you for your time and participation, and I extend my best wishes for every future success.

Sincerely,

A handwritten signature in black ink, reading "Arnold Schwarzenegger".

Arnold Schwarzenegger

California Green Economy Survey Instructions

Save Paper – Save Energy – Save Money

Respond online at www.labormarketinfo.edd.ca.gov and click on



To respond online, choose the button for firms sent a paper survey.

On the authentication page, **please enter the twelve-digit code found at the bottom of the first page of your survey**. After starting the survey, if you have to close before completing it, please follow these instructions:

- ◆ If it has been more than 10 minutes since you accessed the survey, use the process described above to start where you left off.
- ◆ If it has been less than 10 minutes since you were in the survey, please wait 10 minutes before following the procedure above. Again, this should take you were you left off.

You can also return your completed survey in the enclosed envelope or fax it to (916) 262-2607 or (916) 262-2354.

Why is California conducting this survey?

- ◆ To obtain an estimate of the current number of green jobs in California.
- ◆ To identify the current and changing business practices that are helping California to achieve a cleaner and more sustainable environment in terms of both producers and users of green or sustainable products, technology, and energy.
- ◆ To identify the occupations that are emerging or evolving in our movement toward a more green economy.
- ◆ To identify resources and strategies to assist businesses in cutting costs by reducing energy usage and green house gas emissions.

What is the benefit to you?

- ◆ A better prepared workforce to meet the changing needs of your business. You will help us understand green jobs as they are changing so that appropriate training can be developed.
- ◆ Targeted public services and support to help your business reduce costs associated with energy usage.

The California Green Economy Survey is being conducted by the Employment Development Department, Labor Market Information Division, in collaboration with a number of public agencies, and will collect information about:

- ◆ businesses that produce green goods or services;
- ◆ businesses that use green practices, services, or products;
- ◆ barriers to implementation of green practices; and
- ◆ skill requirements for emerging green jobs.

Your response to this survey is important even if you do not consider your business activities to be green. Information from businesses of all sizes is important. All information provided will be kept confidential and aggregated for statistical purposes. Please answer all questions to the best of your knowledge and respond within 15 days.

If you have questions concerning this survey, please call 1-800-_____.

Thank you for your time and participation in this important survey.

CALIFORNIA GREEN ECONOMY SURVEY

Please help us better understand California's Green Economy by taking a few minutes to complete the following survey on green jobs and activities in California

- In total, how many employees work at this location? _____ Type of business _____
- Of these employees, please indicate how many currently **PRODUCE** goods or services in any of the following "GREEN" categories. (Count each employee in only one GREEN Category.) If none of these categories apply to your business, please skip to question 4.

G . R . E . E . N . Categories	How many employees currently work any of their time in this Category?	Of these employees, how many work 50% or more of their time in this Category?
Generating and storing renewable energy - Includes alternative energy generated by but not limited to wind, solar, water, biofuels, biomass, hydrogen fuel cells, and geothermal.		
Recycling existing materials - Businesses involved in the collection and processing of recyclable materials, including firms running a recycling or wastewater plant. Includes environmental clean-up and remediation. <i>(Does not include companies that provide bins for recyclable paper, glass, and cans)</i>		
Energy efficient product manufacturing, distribution, construction, installation, and maintenance - Includes companies involved in the research, development, and manufacturing of products such as solar panels, energy efficient light bulbs, and alternative fuel vehicles. Also includes companies that install and repair these products in new or existing residential or commercial real estate, as well as real estate planning and land development.		
Education, compliance, and awareness - Includes training providers for curricula such as solar panel installation, energy auditing and residential consultation, sustainability management, alternative fuel and vehicle systems, etc. Also includes environmental consulting, governmental/legislative compliance, conservation and wildlife programs, trading and offsets, and social assistance.		
Natural and sustainable product manufacturing - Includes companies that create products using natural materials. Also includes businesses that produce safe, nontoxic products; bamboo products; products out of previously recycled materials; and agricultural firms that practice sustainable farming or forestry.		
Other green categories, please specify:		

- If your staff produces "green" products or services as listed above, what methods are used at your firm to prepare current workers to do this work? (Check all that apply)

<input type="checkbox"/> In-house classroom training <input type="checkbox"/> On-the-job training <input type="checkbox"/> Vendor training <input type="checkbox"/> Apprenticeship programs <input type="checkbox"/> Hire only workers who are already trained	<input type="checkbox"/> Community College courses <input type="checkbox"/> Vocational training <input type="checkbox"/> College Degree (AA/AS or above) <input type="checkbox"/> Other _____
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- If your business makes use of "green" practices, services or products, what does your firm currently **USE** on site? (Check all that apply)

<input type="checkbox"/> Alternative fuel vehicles <input type="checkbox"/> Energy efficiency/conservation <input type="checkbox"/> Sustainable farming <input type="checkbox"/> Recycled products <input type="checkbox"/> LEED or energy efficient construction and remodeling <input type="checkbox"/> None at this time	<input type="checkbox"/> Pollution reduction <input type="checkbox"/> Water conservation <input type="checkbox"/> Recycling <input type="checkbox"/> Some form of renewable energy such as solar, water, wind, biofuel, etc. <input type="checkbox"/> Other _____
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-----Survey ID-----

CALIFORNIA GREEN ECONOMY SURVEY

5. During the next 12 months, do you expect your firm's "green" practices to:
- Decrease Remain the same Increase
6. What new skills or knowledge will future employees need in order to perform "green" activities at your firm? *(Check all that apply)*
- Principles of energy conservation Vehicle technology/maintenance
 Waste minimization Information technology
 Pollution reduction and control Codes/standards/legislation
 Alternative energy (specify) _____ Other _____
7. What barriers, if any, stand in the way of implementing "green" practices at your firm? *(Check all that apply)*
- Shortage of workers with the knowledge or skills Government policies/regulations
 Shortage of available training programs Costs of implementation
 Training classes too full to enroll Lack of information
 Economic conditions Other _____
8. What do you view as the largest benefit to your business in taking steps to reduce greenhouse gas emissions (air pollutants such as carbon dioxide, methane, nitrous oxide, and others)?
- Advantageous position should some regulation occur Cost-savings
 Competitive advantage/community recognition None
 Environmentally beneficial Other _____
9. What resources would help reduce greenhouse gas emissions at your firm? *(Check all that apply)*
- Information about specific actions to take to cost-effectively reduce greenhouse gas emissions
 Case studies showing how similar businesses cost-effectively reduce their greenhouse gas emissions
 Financing options to reduce greenhouse gas emissions
 Online calculator for businesses to calculate their greenhouse gas emissions
 Statewide award program to recognize businesses that successfully reduce greenhouse gas emissions
 Protocol for reporting greenhouse gas emissions
 Technical support (for example training and on-line question and answer)
 None
 Other _____
10. The State of California has many programs and services available to assist your business. If you would like information from any of the following agencies, please check the area of interest and the agency will contact you. *(Check all that apply)*
- Small business development assistance from your local Community College
 Employee training and recruitment from your local Workforce Investment Board
 Employee retraining programs from the Employment Training Panel
 Free Basic Skills Training from the California Department of Education
 How to save money and reduce greenhouse gas emissions from the California Air Resources Board
 Renewable energy system options (e.g. wind, solar, fuel cell, etc.) from the Energy Commission

Whom should be contacted to discuss the area(s) selected in question 10?

Name _____ Telephone _____ Email _____

CALIFORNIA GREEN ECONOMY SURVEY

11. We want to learn more about new and emerging green jobs in California. Does your firm employ individuals involved in “green” practices or activities that have related job titles or who perform similar tasks to those listed below? Please provide an estimate of current employment in the column to the right. **Employees who work in multiple job categories should be counted only once.**

Green Job Description	Estimate of Current Employees
Air Quality Engineers; Air Pollution Specialists; Air Resources Engineers: Design, plan, or perform engineering duties in the prevention, control, and remediation of environmental health hazards.	
Alternative Energy Engineers: Identify and support the development and implementation of alternative energy solutions (fuel, energy or heat) from biomass, landfill, solar, wind, geothermal, and/or other sources.	
Alternative Fuel Vehicle Technicians: Perform specialized service procedures, including field retrofits and advanced electrical and mechanical troubleshooting on hybrid, electric, hydrogen, and other alternative fuel vehicles.	
Architects, Except Landscape: Plan and design energy efficient structures (such as LEED certified), including private residences, office buildings, theaters, factories, and other structural properties.	
Assemblers: Rotate through all the tasks required in a production process to make green products such as energy efficient appliances, hybrid vehicle parts, and solar panels. Determine work assignments and procedures. Shovel and sweep work areas. Operate heavy equipment. Provide assistance in the production of wiring assemblies.	
Battery Engineers; Energy Storage Project Engineers: Generate plans, and perform tests of advanced battery systems and chargers for vehicles, and other storage applications.	
Biological Technicians (involved in green activities): Assist biological scientists in laboratories. Set up, operate, and maintain laboratory instruments and equipment, monitor experiments, make observations, and calculate and record results.	
Biomass Collectors: Gather waste wood, sawdust from lumber mills, garbage, yard clippings and livestock manure. Burn on-site or place waste products into trucks and deliver to off-site biomass power plants or fuel producers.	
Building Performance or Retro-Fitting Specialists: Provide green building consulting services including analysis of the potential environmental impact of materials choices; develop energy efficiency analysis proposals including budgets and work scopes.	
Carpenters (involved in green activities): Construct, erect, install, or repair structures and fixtures made of wood, such as concrete forms; building frameworks, including partitions, joists, studding, and rafters; wood stairways, window and door frames, and hardwood floors.	
Chemical Technicians: Conduct chemical and physical laboratory tests to assist scientists in making qualitative and quantitative analyses of solids, liquids and gaseous materials for purposes such as research and development of fuels, green products or processes, quality control, and maintenance of environmental standards.	
Civil Engineers: Plan, produce and/or design green land development projects (project management, surveying, water/wastewater, and grading).	
Construction Managers: Manage green construction site/activity including planning, scheduling, constructing, monitoring, forecasting, resource allocation and cost control.	
Electrical Engineers: Develop models for distributed generation equipment (photovoltaic, wind, fuel cells, batteries, turbines, and inverters) and conduct simulation studies for interconnections of distributed generation, electrical distribution systems, and hybrid and electric trucks and cars.	
Electricians (involved in green activities): Install, maintain, and repair electrical wiring, equipment, and fixtures. May install solar electric systems.	
Energy Auditors, Home and Commercial: Conduct energy assessments to identify energy efficiency and renewable energy improvement opportunities and offer recommendations for insulation upgrades. Explain incentives, loans, and tax credits for energy efficiency improvements.	
Energy Regulation Specialists: Perform policy research. Analyze, evaluate, develop and recommend alternatives on various regulatory issues and consult with and advise management, staff and other interested parties.	
Environmental Engineers: Collaborate with environmental scientists, planners, and hazardous waste technicians to address environmental problems. Inspect industrial, municipal facilities, and programs to ensure compliance with environmental regulations.	
Farmers, Sustainable: Operate farms or ranches. Plant, cultivate, harvest, and market crops and livestock without using up soil, water, or other resources faster than they can be replaced. May generate own energy from biomass.	
Hazardous Materials Removal Workers: Identify, remove, pack, transport, or dispose of hazardous materials, including asbestos, lead-based paint, waste oil, fuel, transmission fluid, radioactive materials, and contaminated soil, etc.	

CALIFORNIA GREEN ECONOMY SURVEY

Green Job Description (cont.)	Estimate of Current Employees
Heating and Air Conditioning Technicians and Installers (involved in green activities): Install, service, and repair energy efficient geothermal or solar heating and air conditioning systems in residences and commercial establishments.	
Industrial Production Managers: Review processing schedules and production orders to make decisions concerning inventory, staffing requirements, and work procedures considering budgetary limitations.	
Insulation Workers, Floor, Ceiling, and Wall (Weatherization Workers): Line and cover structures with insulating materials. May work with batt, roll, or blown insulation materials.	
Mechanical Engineers (involved in green activities): Plan and design tools, engines, machines, and other mechanically functioning equipment to be used in green industries. Oversee installation, operation, maintenance, and repair of equipment used in alternative energy technologies.	
Plumbers, Pipefitters, and Steamfitters (involved in green activities): Assemble, install, alter, and repair tankless hot water heaters, as well as pipelines or pipe systems that carry water, steam, air, or other liquids or gases.	
Recycling Center Operators: Receive, unload, sort, and weigh recycled materials. Operate forklifts. Bale aluminum and cardboard, and make ready for sale. Prepare shipping and monthly reports.	
Remediation Technology Engineers: Design, construct, operate, and write reports on environmental remediation systems such as groundwater treatment, bioremediation, and pesticide/herbicide impacted soils and groundwater.	
Soil and Plant Scientists: Conduct research in breeding, physiology, production, yield, and management of crops and agricultural plants, their growth in soils, and control of pests; or study the chemical, physical, biological, and mineralogical composition of soils as they relate to crop growth.	
Solar Photovoltaic Panel Installers and Technicians: Install rooftop solar panels and electric systems. Perform wiring, mounting, carpentry and handyman tasks, troubleshooting, and customer interaction.	
Solar Thermal Installers and Technicians: Install solar hot water and pool heating systems, including pipes, tanks, solar collectors, and electrical control systems. Troubleshoot problems and make repairs.	
Sustainability Planners: Develop and help implement sustainability recommendations and plans for city, county, or private facilities. Educate public and do outreach. Research, prepare, and present reports (e.g. environmental impact).	
Sustainability Program Coordinators/Managers: Responsible for the development and implementation of a firm's sustainability strategy and initiatives. Promotes efficient, cost effective technologies and operations of the company with the objective of being environmentally responsible and economically viable.	
Wastewater Technicians and Operators: Operate or control an entire process or system of machines, often through the use of control boards, to transfer or treat water or liquid waste.	
Wind Turbine Technicians: Build and service wind turbines. Use computers and must have an understanding of hydraulics, welding, electricity, algebra and meteorology. Ability to climb 300-ft. high towers.	
Other Green Job Title not listed above (please describe):	
Other Green Job Title not listed above (please describe):	
Other Green Job Title not listed above (please describe):	

12. Please identify any occupations declining due to implementation of "green" practices.

Whom may we contact to learn more about "green" jobs, training requirements, and skill sets?

Name _____ Telephone _____ Email _____

For more information about the Green Economy, go to "Understanding the Green Economy" at <http://www.labormarketinfo.edd.ca.gov/>

Thank you for taking the time to respond!